IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appellants:	Theodore F. Emerson et al.	§	Confirmation No.:	1914
Serial No.:	10/611,403	§	Group Art Unit:	2628
Filed:	07/01/2003	§	Examiner:	Hau H. Nguyen
For:	Operating System Independent Method And Apparatus For Graphical Remote Access	§	Docket No.:	200304331-2

APPEAL BRIEF

Mail Stop Appeal Brief – Patents
Commissioner for Patents
PO Box 1450
Alexandria, VA 22313-1450

Date: August 25, 2009

Sir:

Appellants hereby submit this Appeal Brief in connection with the above-identified application. A Notice of Appeal was electronically filed on June 29, 2009.

TABLE OF CONTENTS

I. REAL PARTY IN INTEREST 3
II. RELATED APPEALS AND INTERFERENCES 4
III. STATUS OF THE CLAIMS 5
IV. STATUS OF THE AMENDMENTS 6
V. SUMMARY OF THE CLAIMED SUBJECT MATTER 7
VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL 11
VII. ARGUMENT 12
A. Obviousness rejection of claims 1-8, 10, 11, 13-17, 19, 20, 22-33, and 35-38 over Szamrej in view of Frederick 12
1. Claims 5, 14, 20 13
2. Claim 7, 16, 32 13
B. Obviousness rejection of claim 7 over Szamrej in view of Frederick and Epart 13
C. Obviousness rejection of claims 12 and 21 over Szamrej in view of Frederick and Fujimoto 14
D. Conclusion 14
VIII. CLAIMS APPENDIX 15
IX. EVIDENCE APPENDIX 26
X. RELATED PROCEEDINGS APPENDIX 27

I. REAL PARTY IN INTEREST

The real party in interest is Hewlett-Packard Development Company, L.P. (HPDC), a Texas Limited Partnership, having its principal place of business in Houston, Texas. HPDC is a wholly owned affiliate of Hewlett-Packard Company (HPC). The Assignment from the inventors to HPDC was recorded on December 2, 2003, at Reel/Frame 014177/0428.

II. RELATED APPEALS AND INTERFERENCES

Appellants are unaware of any related appeals or interferences.

III. STATUS OF THE CLAIMS

Originally filed claims:	1-37.
Claim cancellations:	9, 18, 34.
Added claims:	None.
Presently pending claims:	1-8, 10-17, 19-33 and 35-38.
Presently appealed claims:	1-8, 10-17, 19-33 and 35-38.

IV. STATUS OF THE AMENDMENTS

No claims were amended after the Final Office Action dated May 14, 2009.

V. SUMMARY OF THE CLAIMED SUBJECT MATTER

This section provides a concise explanation of the subject matter defined in each of the independent claims, referring to the specification by page and line number or to the drawings by reference characters as required by 37 C.F.R. § 41.37(c)(1)(v). Each element of the claims is identified with a corresponding reference to the specification or drawings where applicable. The specification references are made to the application as filed by Appellants. Note that the citation to passages in the specification or drawings for each claim element does not imply that the limitations from the specification and drawings should be read into the corresponding claim element. Also note that these specific references are not exclusive; there may be additional support for the subject matter elsewhere in the specification and drawings.

In accordance with the invention of claim 1, a method for transmitting video graphics data comprises a processor[1] dividing a screen into a number of blocks[2], the blocks having contents, and the processor periodically reading, from a buffer, the contents of each one of the blocks over a number of passes, wherein each pass reads a different fraction of all the blocks.[3] The method further comprises the processor computing a unique value for a first block based on the contents,[4] the processor comparing the unique value for the first block to a previously computed unique value corresponding to the first block,[5] and the processor transmitting the contents of the first block if the unique value for the first block is different from the previously computed unique value corresponding to the first block.[6]

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[1] Fig. 2 (10). Page 6 line 21.

[2] Figs. 11A and 11B.

[3] Page 19 lines 3-12.

[4] Fig. 10A (514). Page 20 line 11.

[5] Fig. 10A (516, 518). Page 20 lines 13-18.

[6] Fig. 10B. Page 20 line 23 through page 21 line 18.

In accordance with the invention of claim 13, a method of transmitting video graphics data comprises a processor[7] dividing a screen into a number of blocks,[8] and the processor reading, from a buffer, a first block and at least one subsequent block wherein all the blocks are read over a number of passes and wherein each pass reads a different fraction of all the blocks.[9] The method further comprises the processor comparing the first block to a subsequent block,[10] the processor developing a repeat command based on how many subsequent blocks equal the first block,[11] and the processor transmitting the first block and the repeat command.[12]

In accordance with the invention of claim 22, a method of transmitting video graphics data comprises a processor[13] dividing a screen into a number of blocks,[14] and the processor reading, from a buffer, a first block of the screen,[15] The method further comprises the processor compressing the first block, reading from a buffer a second block of the screen, wherein all the blocks are read over a number of passes and each pass reads a different fraction of all the blocks,[16] comparing the first block to the second block,[17] compressing the second block with the first block if the first and second blocks are not equal,[18] and transmitting the compressed blocks. [19]

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[7] Fig. 2 (10). Page 6 line 21.

[8] Figs. 11A and 11B.

[9] Page 19 lines 3-12.

[10] Fig. 10A (516, 518). Page 20 lines 13-18.

[11] Page 18 lines 6-14.

[12] Fig. 10B. Page 20 line 23 through page 21 line 18.

[13] Fig. 2 (10). Page 6 line 21.

[14] Figs. 11A and 11B.

[15] Page 19 lines 3-12.

[16] Page 19 lines 3-12.

[17] Fig. 10A (516, 518). Page 20 lines 13-18.

[18] Fig. 10B (530). Page 20 line 25.

[19] Fig. 10B. Page 20 line 23 through page 21 line 18.

In accordance with the invention of claim 25, a computer system for communicating with a remote console comprises a video graphics controller[20] having a frame buffer, [21] a communication device,[22] and a processor[23] coupled to the video graphics controller and the communications device. The processor is configured to divide the frame buffer into a number of blocks,[24] periodically read the frame buffer and determine whether any of the blocks have changed since a previous reading, wherein the processor reads all of the blocks over a number of passes and wherein each pass reads a different fraction of all the blocks, and[25] transmit changed blocks to the remote console via the communications device. [26]

In accordance with the invention of claim 37, a computer system for communicating with a remote console comprises a video graphics controller[27] having a frame buffer, [28] a monitor[29] connectable to the video graphics controller, a communication device,[30] and a processor[31] coupled to the video graphics controller and the communications device. The processor is configured to divide the frame buffer into a number of blocks,[32] periodically read the frame buffer and determine whether any of the blocks have changed since a previous reading, wherein each of the blocks are read over a number of passes and wherein each

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[20] Fig. 3 (114a). Page 8 line 19.

[21] Fig. 3 (118). Page 8 line 22.

[22] Fig. 3 (110, 112). Page 8 lines 13-16.

[23] Fig. 2 (10). Page 6 line 21.

[24] Figs. 11A and 11B.

[25] Page 19 lines 3-12.

[26] Fig. 10B. Page 20 line 23 through page 21 line 18.

[27] Fig. 3 (114a). Page 8 line 19.

[28] Fig. 3 (118). Page 8 line 22.

[29] Figs. 1 and 3 (4). Page 5 line 21.

[30] Fig. 3 (110, 112). Page 8 lines 13-16.

[31] Fig. 2 (10). Page 6 line 21.

[32] Figs. 11A and 11B.

pass reads a different fraction of all the blocks,[33] and transmit changed blocks to the remote console via the communications device.[34]

In accordance with the invention of claim 38, an apparatus for updating video graphics data for a remote console comprises means for dividing a frame buffer into a series of blocks,[35] means for reading one of the blocks, wherein each of the blocks are read over a number of passes and wherein each pass reads a different fraction of all the blocks,[36] means for computing a hash code for the block, [37] means for comparing the hash code to a previously computed hash code for the block,[38] and means for transmitting the block if the hash codes are not equal. [39]

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[33] Page 19 lines 3-12.

[34] Fig. 10B. Page 20 line 23 through page 21 line 18.

[35] This means is at least processor 10, Fig. 2 (10). Page 6 line 21. See also Figs. 11A and 11B.

[36] This means is at least processor 10 (Fig. 2, 10), See also page 19 lines 3-12.

[37] This means is at least processor 10 (Fig. 2, 10), Fig. 10A (514). See also page 20 line 11.

[38] This means is at least processor 10 (Fig. 2, 10), Fig. 10A (516, 518). See also page 20 lines 13-18.

[39] This means is at least processor 10 (Fig. 2, 10), Fig. 10B. See also page 20 line 23 through page 21 line 18.

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Whether claims 1-8, 10-11, 13-17, 19-20, 22-33 and 35-38 are obvious (35 U.S.C. § 103) over Szamrej (U.S. Pat. No. 5,990,852) in view of Frederick (U.S. Pat. No. 5,485,212).

Whether claim 7 is obvious (35 U.S.C. § 103) over Szamrej in view of Frederick and Epart (U.S. Patent No. 5,241,625).

Whether claims 12 and 21 are obvious (35 U.S.C. § 103) over Szamrej in view of Frederick and Fujimoto (U.S. Pat. No. 5,473,348).

Appellants note that claim 7 has been listed as rejected under the combination of Szamrej and Frederick and also under the combination of Szamrej, Frederick, and Fujimoto. The former rejection of claim 7 (Szamrej in view of Frederick) may be incorrect on the Examiner's part.

VII. ARGUMENT

A. Obviousness rejection of claims 1-8, 10, 11, 13-17, 19, 20, 22-33, and 35-38 over Szamrej in view of Frederick

Claim 1 requires "periodically reading the contents of each one of the blocks over a number of passes, wherein each pass reads a different fraction of all the blocks." Claim 1 further requires the computation of a unique value for the blocks that are read in each pass. Per claim 1, not all blocks are read with each pass and thus a unique value is not computed for each block in each pass. Subsequent passes read the other blocks and compute unique values of those blocks until eventually all blocks have been read and have had unique values computed. Appellants specification explains that "[i]nstead of reading each block of the frame buffer, a fraction of the frame buffer may be read, such as every fourth block." Page 3 lines 29-29. See also p. 19 lines 5-12 ("For example, every second, third, fourth (as indicated by 'X'), etc. pixel block 200 can be read as illustrated in Figure 11A."). Thus, one of ordinary skill in the art would understand claim 1 require reading some, but not all, blocks during each pass.

The Examiner concluded that Szamrej fails to each "reading the contents of each one of the blocks **over a number of passes, wherein each pass reads a different fraction of all the blocks**." Office Action p. 3 (emphasis by Examiner). Instead, the Examiner turned to Frederick. Applicants' respectfully disagree with the Examiner's use of Frederick.

Frederick teaches dividing an image into an array of blocks with multiple rows and columns of pixels in each block. See Frederick col. 3, lines 41-50. Frederick further teaches that "the average of the numbers stored at the pixel locations of a row of each block is computed." Col. 3, lines 62-64. See also col. 3, line 65 through col. 4, line 15. Thus, Frederick teaches that, with each pass through the image, a value is computed for every block of data. Claim 1 specifically requires that "each pass reads a different fraction of all of the blocks." Frederick simply does not teach or even suggest this limitation.

For at least this reason, the Examiner erred in rejecting claim 1 and all claims dependent thereon. The same or similar argument applies to the remaining independent claims and their dependent claims as well.

1. Claims 5, 14, 20

Claim 5 requires reading configuration information of a video graphics controller, determining if the configuration information has changed, and transmitting the configuration changes, if any. For these limitations, the Examiner pointed to col. 4, lines 7-11 of Szarmrej. These lines specify that

> The number of blocks used will depend upon screen resolution, processing power and memory and bandwidth availability. For example, there may be 32 blocks horizontally and 24 blocks vertically for a 1024 x 768 pixel display screen.

The Examiner noted that the reference to "screen resolution" is a configuration parameter for a video controller. While these lines do refer to screen resolution, they do not at all teach reading configuration information of a video graphics controller to detect changes and transmitting those changes. For this additional reason, the Examiner erred in rejecting claim 5. This same reasoning applies to at least dependent claims 14 and 30.

2. Claim 7, 16, 32

Dependent claim 7 requires determining if a position of a pointing device has changed and, if such a change in pointing device position has occurred, transmitting such change. None of the art of record teaches or even suggests this combination of limitations. This same reasoning applies to at least dependent claims 16 and 32.

B. Obviousness rejection of claim 7 over Szamrej in view of Frederick and Epart

As explained above, dependent claim 7 requires determining if a position of a pointing device has changed and, if such a change in pointing device position has occurred, transmitting such change. None of the art of record teaches or even suggests this combination of limitations. Claim 7 is also allowable for much the same reason as claim 1 from which claim 7 depends. Epart does not satisfy the deficiencies of Szamrej and Frederick as explained above regarding claim 1.

C. Obviousness rejection of claims 12 and 21 over Szamrej in view of Frederick and Fujimoto

Dependent claims 12 and 21 depend from allowable base claims. Fujimoto does not satisfy the deficiencies of the base claim and thus claims 12 and 21 are allowable for at least that reason.

D. Conclusion

For the reasons stated above, Appellants respectfully submit that the Examiner erred in rejecting all pending claims. It is believed that no extensions of time or fees are required, beyond those that may otherwise be provided for in documents accompanying this paper. However, in the event that additional extensions of time are necessary to allow consideration of this paper, such extensions are hereby petitioned under 37 C.F.R. § 1.136(a), and any fees required (including fees for net addition of claims) are hereby authorized to be charged to Hewlett-Packard Development Company's Deposit Account No. 08-2025.

Respectfully submitted,

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VIII. CLAIMS APPENDIX

1. A method for transmitting video graphics data, comprising:

a processor dividing a screen into a number of blocks, the blocks having contents;

the processor periodically reading, from a buffer, the contents of each one of the blocks over a number of passes, wherein each pass reads a different fraction of all the blocks;

the processor computing a unique value for a first block based on the contents;

the processor comparing the unique value for the first block to a previously computed unique value corresponding to the first block; and

the processor transmitting the contents of the first block if the unique value for the first block is different from the previously computed unique value corresponding to the first block.

2. The method of claim 1, further comprising:

storing the unique value for the first block in a table if the unique values are different; and

comparing the unique value of the first block to a unique value corresponding to a preceding block,

wherein the transmitting step transmits the preceding block and a repeat command if the unique value of the first block is equal to the unique value corresponding to the preceding block.

3. The method of claim 1, further comprising:

storing the unique value of the first block in a table if the unique values are different;

comparing the unique value of the first block to a unique value corresponding to a preceding block; and

compressing the contents of the first block if the unique values are not equal,

wherein the transmitting step transmits the preceding block and a compressed first block if the unique value of the first block is not equal to the unique value corresponding to the preceding block.

4. The method of claim 3, wherein the compressing step includes compressing a number of similar bytes using a run length encoding technique.

5. The method of claim 1, further comprising:

periodically reading configuration information of a video graphics controller;

determining if the configuration information has changed; and

transmitting configuration changes if the configuration information has changed.

6. The method of claim 5,

wherein the screen is divided into a number of blocks, including rows and columns, based on the screen resolution, and

wherein the configuration information is read after a row of blocks is completed.

7. The method of claim 1, further comprising:

periodically reading information of a pointing device;

determining if a position of the pointing device has changed; and

transmitting configuration changes if the position has changed.

8. The method of claim 7,

wherein the screen is divided into a number of blocks, including rows and columns, based on the screen resolution, and

wherein the configuration information is read after a row of blocks is completed.

10. The method of claim 1, wherein surrounding blocks are marked for accelerated processing if during one of the passes the unique value for a given block is different from a previously computed unique value corresponding to the given block.

11. The method of claim 10, wherein each pass reads a different fraction of all the blocks and any blocks marked for accelerated processing.

12. The method of claim 1, wherein the blocks contain color values, the method further comprising:

condensing the color values into 6-bit red-green-blue color values before computing the unique values.

13. A method of transmitting video graphics data, comprising:

a processor dividing a screen into a number of blocks;

the processor reading, from a buffer, a first block and at least one subsequent block wherein all the blocks are read over a number of passes and wherein each pass reads a different fraction of all the blocks;

the processor comparing the first block to a subsequent block;

the processor developing a repeat command based on how many subsequent blocks equal the first block; and

the processor transmitting the first block and the repeat command.

14. The method of claim 13, comprising:

periodically reading configuration information of a video graphics controller;

determining if the configuration information has changed; and

transmitting configuration changes if the configuration information has changed.

15. The method of claim 14,

wherein the screen is divided into a number of blocks, including rows and columns, based on the screen resolution, and

wherein the configuration information is read after a row of blocks is completed.

16. The method of claim 13, comprising:

periodically reading configuration information of a pointing device;

determining if a position of the pointing device has changed; and

transmitting configuration changes if the position has changed.

17. The method of claim 16,

wherein the screen is divided into a number of blocks, including rows and columns, based on the screen resolution, and wherein the configuration information is read after a row of blocks is completed.

19. The method of claim 13, wherein surrounding blocks are marked for accelerated processing if during one of the passes the unique value for a given block is different from a previously computed unique value corresponding to the given block.

20. The method of claim 19, wherein each pass reads a different fraction of all the blocks and any blocks marked for accelerated processing.

21. The method of claim 12, wherein the blocks contain color values, the method further comprising:

condensing the color values into 6-bit red-green-blue color values, before computing the unique values.

22. A method of transmitting video graphics data, comprising;

a processor dividing a screen into a number of blocks;

the processor reading, from a buffer, a first block of the screen;

the processor compressing the first block;

the processor reading, from a buffer, a second block of the screen, wherein all the blocks are read over a number of passes and each pass reads a different fraction of all the blocks;

the processor comparing the first block to the second block;

the processor compressing the second block with the first block if the first and second blocks are not equal; and

the processor transmitting the compressed blocks.

23. The method of claim 22, wherein the compressing step includes compressing a number of similar bytes using a run length encoding technique.

24. The method of claim 22,

wherein surrounding blocks are marked for accelerated processing if during one of the passes the unique value for a given block is different from a previously computed unique value corresponding to the given block, and

wherein the reading step includes reading a different fraction of all the blocks and any blocks marked for accelerated processing.

25. A computer system for communicating with a remote console, comprising:

a video graphics controller having a frame buffer;

a communication device; and

a processor coupled to the video graphics controller and the communications device, the processor configured to:

divide the frame buffer into a number of blocks;

periodically read the frame buffer and determine whether any of the blocks have changed since a previous reading, wherein the processor reads all of the blocks over a number of passes and wherein each pass reads a different fraction of all the blocks; and

transmit changed blocks to the remote console via the communications device.

26. The computer system of claim 25, wherein a hash code is calculated and stored for each block when the block is first read, and wherein subsequent

changes are determined for a given block by calculating a new hash code and comparing the new hash code to the stored hash code.

27. The computer system of claim 26, wherein if subsequently positioned changed blocks have hash codes equal to a previously positioned block, the processor is configured to develop a repeat command to indicate how many times the previously positioned block is repeated prior to transmission.

28. The computer system of claim 26, wherein if subsequently positioned changed blocks have hash codes unequal to a previously positioned block, the processor is configured to compress the subsequently positioned changed block prior to transmission.

29. The computer system of claim 28, wherein the processor is configured to compress similar bytes within a block using a run length encoding technique.

30. The computer system of claim 25, wherein the processor is further configured to:

periodically read configuration information of the video graphics controller;

determine if the configuration information has changed; and

transmit configuration changes if the configuration information has changed.

31. The computer system of claim 30,

wherein the screen is divided into a number of blocks, including rows and columns, based on the screen resolution, and

wherein the processor reads the configuration information after a row of blocks is completed.

32. The computer system of claim 25, wherein the processor is further configured to:

periodically read configuration information of a pointing device;

determine if a position of the pointing device has changed; and

transmit configuration changes if the position has changed.

33. The computer system of claim 32,

wherein the screen is divided into a number of blocks, including rows and columns, based on the screen resolution, and

wherein the processor reads the configuration information after a row of blocks is completed.

35. The computer system of claim 25, wherein the processor marks surrounding blocks for accelerated processing if during one of the passes the unique value for a given block is different from a previously computed unique value corresponding to the given block.

36. The computer system of claim 35, wherein each pass reads a different fraction of all the blocks and any blocks marked for accelerated processing.

37. A computer system for communicating with a remote console, comprising:

a video graphics controller having a frame buffer;

a monitor connectable to the video graphics controller;

a communication device; and

a processor coupled to the video graphics controller and the communications device, the processor configured to:

divide the frame buffer into a number of blocks;

periodically read the frame buffer and determine whether any of the blocks have changed since a previous reading, wherein each of the blocks are read over a number of passes and wherein each pass reads a different fraction of all the blocks; and

transmit changed blocks to the remote console via the communications device.

38. An apparatus for updating video graphics data for a remote console, comprising:

means for dividing a frame buffer into a series of blocks;

means for reading one of the blocks, wherein each of the blocks are read over a number of passes and wherein each pass reads a different fraction of all the blocks;

means for computing a hash code for the block;

means for comparing the hash code to a previously computed hash code for the block ; and

means for transmitting the block if the hash codes are not equal.

IX. EVIDENCE APPENDIX

None.

X. RELATED PROCEEDINGS APPENDIX

None.